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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FRONDA, CHRISTIAN L

ART UNIT

PAPER NUMBER

1652

MAIL DATE

DELIVERY MODE

03/16/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/578,894

Applicant(s)

BUSHELL-WILLIAMS ET AL.

Examiner

CHRISTIAN FRONDA

Art Unit

1652

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-12 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2009 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/16/09
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-14 are pending in the instant application. Claims 9 and 13 have been previously withdrawn from further consideration as being drawn to a nonelected invention
2. Claims 1-8, 10-12, and 14 (new claim) are under consideration in this Office Action.
3. The substitute sequence listing filed 05/25/2010 has been accepted and entered.
4. The rejection of claims 1-8 and 10-12 under 35 USC 101 has been withdrawn in view of the claim amendment and arguments filed 12/16/2009.
5. The rejection of 3 and 8 under 35 U.S.C. 112, second paragraph, as being indefinite has been withdrawn in view of the claim amendment and arguments filed 12/16/2009.

Claim Rejections - 35 U.S.C. § 112, First Paragraph

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-8, 10-12, and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The arguments filed 12/16/2009 have been considered but are not persuasive for reasons of record as supplemented below.

The claims are genus claims encompassing a genus of fusion proteins comprising a genus of carbohydrate binding domains and a genus of domains having a high binding affinity for a microcapsule comprising a melamine based chemical component. As previously stated, the scope of each genus includes many members with widely differing amino acid sequences and structures from many biological sources, where the genus is highly variable because a significant number of structural and chemical differences between genus members exists. The specification discloses melamine-binding proteins VhhM-1E7, VhhM-1C8, and VhhM-1G711,

The specification, however, does not describe and define any structural features, amino acid sequences, and biological functions that are commonly possessed by members of each genus. The specification does not provide any correlation between any structure of the genus of carbohydrate binding domains and the activity of binding to any carbohydrate. The specification does not provide any correlation between any structure of the genus of domains having a high binding affinity for a microcapsule comprising a melamine based chemical component and the activity of binding to any melamine based chemical component. The specification fails to disclose additional fusion proteins other than the above mentioned melamine-binding proteins VhhM-1E7, VhhM-1C8, and VhhM-1G711, which is insufficient to be representative of the attributes and features common to all the members of each claimed genus. Thus, one of skill in the art would not recognize that applicants were in possession of the each claimed genus.

Claim Rejections - 35 U.S.C. § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was

commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

According to MPEP 2143:

“Exemplary rationales that may support a conclusion of obviousness include:

(A) Combining prior art elements according to known methods to yield predictable results;

(B) Simple substitution of one known element for another to obtain predictable results;

(C) Use of known technique to improve similar devices (methods, or products) in the same way;

(D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(E) “Obvious to try” – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

(F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;

(G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

Note that the list of rationales provided is not intended to be an all-inclusive list. Other rationales to support a conclusion of obviousness may be relied upon by Office personnel.”

9. Claims 1-8, 10-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis et al. (WO 01/46357, published 06/28/2001; PTO 1449 of IDS filed 05/11/2006) in view of Uchiyama et al. (WO 03/089019, published 10/30/2003; PTO 1449 of IDS filed 05/11/2006) and US Patent 5,593,850 (published 01/14/1997; reference of record). The arguments filed 12/16/2009 have been considered but are not persuasive for reasons of record as supplemented below.

In response to the arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on

combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). According to MPEP 2144, it is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicants. Although teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention is an appropriate method for determining obviousness; however, it is just one of a number of valid rationales for doing so. The Supreme Court in *KSR* identified several exemplary rationales to support a conclusion of obviousness which are consistent with the proper functional approach to the determination of obviousness as laid down in *Graham*, which is stated above in MPEP 2143. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). One of ordinary skill in the art would be motivated to combine the references as previously stated in order to have a fusion protein that will allow for delivery of a benefit agent such as a perfume and odor control agent to a surface such as a fabric during a washing or rinsing process and surface and provide a controlled-release of the benefit agent onto the surface or into the environment surrounding the surface. One of ordinary skill in the art has a reasonable expectation of success since Davis et al. teach the successful construction of fusion proteins comprising a carbohydrate binding domain and a domain having high binding affinity for another ligand, and US Patent 5,593,850 teaches successful generation of monoclonal antibodies to polymers. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made.

The reference teachings and previous rejection is reproduced below.

Davis et al. teach a fusion protein comprising cellulose binding domain obtainable from *Trichoderma* and *Humicola* and a domain having high binding affinity for another ligand, where

the said domain includes peptides and antibodies, such as the Heavy Chain antibody found in Camelidae (the binding domain of this antibody consists of a single polypeptide fragment which is the variable region of the heavy chain polypeptide (HC-V)), that can be generated that are specific for almost any protein, organic molecule, or cell surface that is likely to be encountered. Davis et al. teach that the cellulose binding domain is connected to the domain having a high binding affinity for another ligand by means of a linker consisting of about 0-20, preferably about 2-15, more preferably of 2-5 amino acid residues. Davis et al. teach detergent compositions comprising such fusion protein, surfactants, and benefit agents including perfumes, fragrances, polymeric lubricants, and photoprotective agents, where the detergent compositions are capable of delivering the benefit agent to a fabric during a washing or rinsing process and the fragrances or perfumes may be encapsulated in latex microcapsules or gelatine based coacervates. See entire publication and claims, especially pages 1-19.

The teachings of Davis et al. differ from the claims in that the fusion protein does not comprising a domain having binding affinity for a microcapsule comprised or containing a melamine based chemical component.

Uchiyama et al. teach malodor-controlling compositions comprising microcapsules having melamine as chemical component and their use as carriers of benefit agents including perfume and odor control agent. Uchiyama et al. teach that the malodor-controlling compositions can be applied to surfaces, such as fabrics, to reduce or remove malodor from the surface and to provide a controlled-release of the active material onto the surface or into the environment surrounding the surface. See entire publication especially pages 1-12.

US Patent 5,593,850 teaches generation of monoclonal antibodies to polymers. See entire publication.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the fusion protein of Davis et al. such that the peptide or antibody is generated to have a high binding affinity to the microcapsules of Uchiyama et al. having melamine as chemical component. One of ordinary skill in the art would be motivated to do this

in order to have a fusion protein that will allow for delivery of a benefit agent such as a perfume and odor control agent to a surface such as a fabric during a washing or rinsing process and surface and provide a controlled-release of the benefit agent onto the surface or into the environment surrounding the surface. One of ordinary skill in the art has a reasonable expectation of success since Davis et al. teach the successful construction of fusion proteins comprising a carbohydrate binding domain and a domain having high binding affinity for another ligand, and US Patent 5,593,850 teaches successful generation of monoclonal antibodies to polymers.

Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made.

Conclusion

10. No claims are allowed.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian L Fronda whose telephone number is (571)272-0929.

The examiner can normally be reached Monday-Thursday and alternate Fridays between 9:00AM - 5:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Mondesi can be reached on (571)272-0956. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christian L. Fronda/
Primary Examiner
Art Unit 1652